

BRIEF DESCRIPTION OF THE DRAWING

The invention will now be described in more detail with reference to a number of embodiments and a drawing, in which:

5 Fig. 1 shows an example of an assembly of two luminaires according to the invention in cross-section.

The Figure is purely diagrammatic and not drawn true to scale. Some dimensions are particularly strongly exaggerated for the sake of clarity.

10 DETAILED DESCRIPTION OF
PRESENTLY PREFERRED EMBODIMENTS

Fig. 1 shows an assembly of a first luminaire 1 and a second luminaire 11 for illuminating an object V. The object V in Fig. 1 is a motor vehicle, for example an automobile. Alternative objects are artistic objects, such as paintings, photographs, 15 sculptures, etc. Such objects often have a mirroring surface.

The first and the second luminaire 1; 11 each comprise a box-type housing 2; 12. A plurality of tubular lamps 3, 3', 3"; 13 is provided in the housing 2; 12, for example low-pressure mercury vapor discharge lamps. Three discharge lamps of the TL5 type are placed in the luminaire 1 in the example of Fig. 1. In an alternative embodiment, five, 20 eight, or more lamps are provided in one luminaire, for example of the TL5 28 W type with color rendering index 84. The tubular lamps 3, 3', 3"; 13 are provided in the housing 2; 12 in a certain regular arrangement, such that the tubular lamps 3, 3', 3"; 13 are positioned parallel to one another. Preferably, the distance to the side wall 5; 15 of the lamp 3; 13 placed closest to said the side wall 5; 15 is at least substantially equal to half 25 the mutual interspacings between the lamps 3, 3', 3".

Each of the housings 2; 12 of the luminaires 1; 11 is provided with a curtain 21; 31 and with an optically transparent diffuser 7; 17 in a light emission window 4; 14 for the purpose of reducing the direct view of the tubular lamps 3, 3', 3"; 13 in the housing 2; 5 12 and obtaining a uniform light output. The housing is provided with a side wall 5, 5'; 15 transverse to the light emission window 4; 14. If so desired, the side wall 5, 5'; 15 may alternatively be provided so as to be oblique with respect to the light emission window 4; 14. The curtain 21; 31 is manufactured, for example, from light-reflecting powders, for example calcium halophosphate and/or calcium pyrophosphate, which 10 powders are provided on a carrier 22; 32 of a transparent material such as glass, synthetic resin, or perspex. The diffuser 7; 17 and the side wall 5, 5'; 15 are manufactured, for example, from a glass, a synthetic resin, or perspex, which materials scatter the light diffusely (for example, so-called milk glass).

The first luminaire 1 in the assembly according to the invention lies with a side 15 wall 5, against the wall 15 of the second luminaire 11. In an alternative embodiment, the luminaires 1; 11 lie against one another via the diffusers 7; 17 in the assembly. In that case the side walls support the diffusers 7; 17 not at the edge of the light emission window but, for example, at a certain (short) distance from the edge of the light emission window. In a further alternative embodiment of the assembly, the light emission window 20 is interrupted at the area of the side wall. In that case, the edge of the side wall is presumed to form part of the light emission window in the description of this invention.

In the example of Fig. 1, both the housing 2 of the first luminaire 1 and the housing 12 of the second luminaire 11 are provided with a side wall, denoted 5 and 15, respectively, at the area where the luminaires 1; 11 make contact. The invention, 25 however, is not limited to this embodiment. Thus it is possible for only one side wall to be present at the area of contact of the adjoining luminaires, in which case, for example, the side wall of the one luminaire supports the light emission windows of both luminaires. Such an embodiment may simplify the mounting of luminaires in the formation of the assembly. In the assembly according to the invention, an edge 6, 6' of 30 the light emission window 4 of the first luminaire 1 situated at the area of the side wall 5,

5' lies against an edge 16 of the light emission window 14 of the second luminaire 11 situated at the area of the side wall 15. Furthermore, the diffusers 7; 17 and said the side walls 5, 5'; 15 are manufactured from an optically transparent material. The two light 5 emission windows 4; 14 form an evenly illuminated surface in such an assembly.

In the example of Fig. 1, the curtain 21; 31 is provided in an internal space 23; 33 of the luminaire 1; 11 at a distance both from the tubular lamps 3, 3', 3"; 13 and from the diffuser 7; 17 in the housing. The internal space 23; 33 is subdivided into a first 24; 34 and a second chamber 25; 35 by the curtain 21; 31. The curtain 21; 31 in particular 10 shows a variation in layer thickness, the layer thickness of the curtain 21; 31 being chosen to be greater directly opposite the location where the tubular lamp 3, 3', 3"; 13 is present during operation. A longitudinal axis 20 transverse to the light emission window 4 is shown in Fig. 1, which axis passes through the center of the tubular lamp 3 and indicates the thickest portion of the curtain 21; 31. The subdivision of the internal space 15 23; 33 into the first 24; 34 and the second chamber 25; 35 leads to a light homogenization in two stages, which contributes to a very homogeneous distribution of the intensity of the light issuing from the light emission window 4; 14 and which renders contours of the tubular lamps 3, 3', 3"; 13 at least substantially invisible to an observer. A first light homogenization is achieved in the first chamber 24; 34 and during the passage of the 20 light through the curtain 21; 31. The curtain 21; 31 shown achieves a comparatively high uniformity of the distribution of the light intensity of the light issuing through the curtain 21; 31 and from the first chamber 24; 34 during operation. The light issuing from the first chamber 24; 34 enters the second chamber 25; 35, where subsequently a further light homogenization takes place through reflection of the light in the second chamber 25; 35 25 and owing to the passage of the light through the diffuser 7; 17, before the light is emitted by the light emission window 4; 14.

The provision of a curtain 21; 31 with said the layer thickness variation in the light emission window of the luminaire 1; 11 renders it possible to position the tubular lamp 3, 3', 3"; 13 comparatively close to the curtain 21; 31 and the light emission window 4; 14 in the housing 2; 12, so that the dimensions of the luminaire 1; 11 are more compact than those of the known luminaire, while nevertheless a more uniform light distribution is realized than with the known luminaire. It is rendered possible thereby in particular to reduce the depth of the housing 2; 12 considerably, which is an advantage in mounting of the assembly.

The housing 2; 12 of each luminaire 1; 11 in the assembly is preferably rectangular, for example square, with typical dimensions being 300 mm, 600 mm, 900 mm, 1200 mm, or 1500 mm, or combinations thereof. A particularly suitable height for the housing 2; 12 is 40 to 80 mm, in particular a height of 45 mm. The possibility of a compact construction means that no special recessed panels need be used in ceiling mounting. In fact, the luminaires are provided with mutual interspacings equal to zero and form as it were an integral whole in the assembly. The components necessary for fastening are invisible. It is possible for maintenance purposes to remove the diffuser 7; 17 from the housing in a direction parallel to the longitudinal axis 20, for example for the replacement of the tubular lamps.

The transmittance of the curtain 21; 31 at the area where the layer thickness is greatest preferably amounts to approximately 50% of the transmittance of the curtain 21; 31 at the area where the layer thickness is smallest. In other words, the transmittance of the curtain 21; 31 directly opposite the location where the tubular lamp 3, 3', 3"; 13 is present during operation is approximately 50% of the transmittance of the curtain 21; 31 where the tubular lamp 3, 3', 3"; 13 is at a maximum distance during operation. Particularly suitable materials for the curtain 21; 31 are calcium halophosphate and/or calcium pyrophosphate. Such a curtain is provided on the carrier 22; 32 in the form of a paint, for which a binder, for example a fluoro-copolymer, for example THV, is used, as well as a solvent (for example Mibk). The carrier material used for the carrier 22; 32 may be glass, synthetic resin, and perspex. The advantages of the use of such a curtain

21; 31 and such a binder in the curtain 21; 31 are that baking out is not necessary, and
that the reflection has at least substantially the same high value over the entire visible
range and over a major portion of the UV range. This means that this curtain 21; 31 and
5 these binders are particularly suitable for use in coating layers against which the light is
reflected many times, because selective absorption and resulting color differences are
effectively counteracted thereby. Further additives may be added to the paint mixture,
for example those ~~which~~ that exhibit an improved flow or mixing behavior.

The light absorption for visible light of such a curtain 21; 31 is very low, i.e.,
10 below 3%. In addition, a curtain 21; 31 comprising calcium halophosphate and/or
calcium pyrophosphate shows substantially no color shift, i.e., such a curtain has a
comparatively small wavelength dependence.

The housing 2; 12 in the example of Fig. 1 is further provided with a rear wall 8;
18 which is provided at a side facing the light emission window 4; 14 and has a reflecting
15 coating 9; 19 which is known per se.

While the embodiments of the invention disclosed herein are presently considered
to be preferred, various changes and modifications can be made without departing from
the spirit and scope of the invention. The scope of the invention is indicated in the
 appended claims, and all changes that come within the meaning and range of equivalents
20 are intended to be embraced therein.